United Nations S/2015/159

Security Council

Distr.: General
5 March 2015

Original: English

Note by the President of the Security Council

At its 6335th meeting, held on 9 June 2010 in connection with the item entitled "Non-proliferation", the Security Council adopted resolution 1929 (2010).

In paragraph 4 of the resolution, the Security Council requested the Director General of the International Atomic Energy Agency to communicate to the Security Council all his reports on the application of safeguards in the Islamic Republic of Iran.

Accordingly, the President circulates herewith the report of the Director General dated 19 February 2015 (see annex).

15-03425 (E) 100315

Please recycle

Annex

Letter dated 19 February 2015 from the Director General of the International Atomic Energy Agency addressed to the President of the Security Council

I have the honour to enclose herewith the report requested by the Security Council in its resolution 1929 (2010), which I have submitted to the Board of Governors of the International Atomic Energy Agency (see enclosure).

I should be grateful if you would bring this letter and the enclosed report to the attention of the members of the Security Council.

(*Signed*) Yukiya **Amano**

Enclosure

[Original: Arabic, Chinese, English, French, Russian and Spanish]

Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran*

Report by the Director General

Main Developments

- The Director General held talks with the Foreign Minister of Iran, HE Mohammad Javad Zarif on 7 February 2015. They agreed on the importance of continuing the dialogue between the Agency and Iran at all levels. The Director General also stressed the need to resolve, as soon as possible, all outstanding issues related to Iran's nuclear programme.
- Iran has not provided any explanations that enable the Agency to clarify the two outstanding practical measures, nor has it proposed any new practical measures in the next step of the Framework for Cooperation.
- The Agency has continued to undertake monitoring and verification in relation to the nuclear related measures set out in the Joint Plan of Action (JPA), as further extended.
- Since the JPA took effect, Iran has not enriched UF_6 above 5% U-235 at any of its declared facilities and all of its stock of UF_6 enriched up to 20% U-235 has been further processed through downblending or conversion into uranium oxide.
- Enrichment of UF_6 up to 5% U-235 has continued at a rate of production similar to that indicated in the Director General's previous reports. The amount of such nuclear material that remains in the form of UF_6 enriched up to 5% U-235 is 7,952.9 kg.
- No additional major components have been installed at the IR-40 Reactor and there has been no manufacture and testing of fuel for the reactor.
- Iran has continued to provide the Agency with managed access to centrifuge assembly workshops, centrifuge rotor production workshops and storage facilities.

A. Introduction

1. This report of the Director General to the Board of Governors and, in parallel, to the Security Council, is on the implementation of the NPT Safeguards Agreement[1] and relevant provisions of Security Council resolutions in the Islamic

* Circulated to the Board of Governors of the International Atomic Energy Agency under the symbol GOV/2015/15.

[1] The Agreement between Iran and the Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons (INFCIRC/214), which entered

Republic of Iran (Iran). It contains information, inter alia, regarding the implementation of measures under the 'Joint Statement on a Framework for Cooperation' (the Framework for Cooperation) and the Joint Plan of Action (JPA), as further extended.[2]

2. The Security Council has affirmed that the steps required by the Board of Governors in its resolutions[3] are binding on Iran.[4] The relevant provisions of the aforementioned Security Council resolutions[5] were adopted under Chapter VII of the United Nations Charter and are mandatory, in accordance with the terms of those resolutions.[6] The full implementation of Iran's obligations is needed in order to ensure international confidence in the exclusively peaceful nature of its nuclear programme.

3. As previously reported, on 11 November 2013 the Agency and Iran signed a 'Joint Statement on a Framework for Cooperation' (GOV/INF/2013/14). In the Framework for Cooperation, the Agency and Iran agreed to cooperate further with respect to verification activities to be undertaken by the Agency to resolve all present and past issues, and to proceed with such activities in a step by step manner. The practical measures agreed, to date, in relation to the Framework for Cooperation are listed in Annex I.

4. As previously reported, on 24 November 2013 a 'Joint Plan of Action' (JPA) was agreed between China, France, Germany, the Russian Federation, the United Kingdom and the United States of America (E3+3) and Iran.[7] The JPA took effect on 20 January 2014, initially for a period of six months. As requested by the E3+3 and Iran, and endorsed by the Board of Governors (subject to the availability of funds), the Agency undertook the necessary nuclear-related monitoring and verification activities in relation to the JPA, involving activities additional to those already being carried out pursuant to Iran's Safeguards Agreement and relevant resolutions of the Board of Governors and Security Council. On 24 July 2014, the JPA was extended until 24 November 2014.[8]

5. On 24 November 2014, the JPA was further extended until 30 June 2015.[9] For the Agency to continue to undertake the necessary nuclear-related monitoring and verification activities, an additional sum of €4.6 million of voluntary extrabudgetary contributions was required.[10] As of 16 February 2015, the pledges[11] of a number of Member States totalled €6 million.

---

into force on 15 May 1974.

[2] GOV/INF/2014/28, Attachment; GOV/2014/62.

[3] Between September 2003 and September 2012, the Board of Governors adopted 12 resolutions in connection with the implementation of safeguards in Iran (see GOV/2013/56, footnote 2).

[4] Security Council resolution 1929 (2010).

[5] GOV/2013/56, footnote 4.

[6] Part I.A of the Agency's Relationship Agreement with the United Nations (INFCIRC/11).

[7] The text of the JPA was communicated to the Director General by the High Representative of the European Union (EU), on behalf of the E3+3 (INFCIRC/855), and by the Resident Representative of Iran to the IAEA, on behalf of Iran (INFCIRC/856).

[8] GOV/INF/2014/18, Annex.

[9] See footnote 2 of this report.

[10] GOV/2014/62, para. 9.

[11] As of 16 February 2015, €1.1 million had been received by the Agency.

6. This report addresses developments since the Director General's previous report (GOV/2014/58 and Corr.1),[12] as well as issues of longer standing.

A. Clarification of Unresolved Issues

7. The Board of Governors, in its resolution of November 2011 (GOV/2011/69), stressed that it was essential for Iran and the Agency to intensify their dialogue aimed at the urgent resolution of all outstanding substantive issues for the purpose of providing clarifications regarding those issues, including access to all relevant information, documentation, sites, material and personnel in Iran. In its resolution of September 2012 (GOV/2012/50), the Board of Governors decided that Iranian cooperation with Agency requests aimed at the resolution of all outstanding issues was essential and urgent in order to restore international confidence in the exclusively peaceful nature of Iran's nuclear programme.

8. As indicated in the Director General's previous report,[13] in October and November 2014 Iranian and Agency officials held discussions in relation to the implementation of the two practical measures agreed in May 2014 in the third step of the Framework for Cooperation that remained to be implemented. These measures related to the initiation of high explosives and to neutron transport calculations (see Annex I). Iran did not provide any explanations that enabled the Agency to clarify the two outstanding practical measures. On 2 November 2014, it was agreed that another technical meeting to further discuss these two practical measures would take place as soon as possible, but, at the request of Iran, not before 24 November 2014 (the deadline, at that time, of the JPA).

9. On 7 February 2015, the Director General held talks with the Foreign Minister of Iran, HE Mohammad Javad Zarif, in Munich. They agreed on the importance of continuing the dialogue between the Agency and Iran at all levels. The Director General also stressed the need to resolve, as soon as possible, all outstanding issues related to Iran's nuclear programme.

10. Since the Director General's previous report, Iran has not provided any explanations that enable the Agency to clarify the two outstanding practical measures. The Agency remains ready to provide Iran with additional questions to facilitate such clarification.

11. As previously reported, on several occasions since August 2014 the Agency has invited Iran to propose new practical measures that Iran would implement in the next step of the Framework for Cooperation.[14] Iran has not proposed any new practical measures.

B. Facilities Declared under Iran's Safeguards Agreement

12. Under its Safeguards Agreement, Iran has declared to the Agency 18 nuclear facilities and nine locations outside facilities where nuclear material is customarily

[12] The Director General continues to provide the Board of Governors with monthly updates on Iran's implementation of "voluntary measures" undertaken in relation to the JPA, the most recent of which was provided in GOV/INF/2015/2.

[13] GOV/2014/58, para. 8.

[14] GOV/2014/43, para. 13.

used (LOFs)[15] (Annex II). Notwithstanding that certain of the activities being undertaken by Iran at some of the facilities are contrary to the relevant resolutions of the Board of Governors and the Security Council, as indicated below, the Agency continues to verify the non-diversion of declared nuclear material at these facilities and LOFs.

C. Enrichment Related Activities

13. Contrary to the relevant resolutions of the Board of Governors and the Security Council, Iran has not suspended all of its enrichment related activities in the declared facilities referred to below. However, since 20 January 2014, Iran has not produced UF_6 enriched above 5% U-235 and all of its stock of UF_6 enriched up to 20% U-235 has been further processed through downblending or conversion into uranium oxide. All of the enrichment related activities at Iran's declared facilities are under Agency safeguards, and all of the nuclear material, installed cascades, and feed and withdrawal stations at those facilities are subject to Agency containment and surveillance.[16]

14. Iran has stated that the purpose of enriching UF_6 up to 5% U-235 is the production of fuel for its nuclear facilities.[17] Iran has also stated that the purpose of enriching UF_6 up to 20% U-235 is the manufacture of fuel for research reactors.[18]

15. Since Iran began enriching uranium at its declared facilities, it has produced at those facilities:

- 14,174.9 kg[19] (+877.6 kg since the Director General's previous report) of UF_6 enriched up to 5% U-235, of which 7,952.9 kg (-337.4 kg since the Director General's previous report)[20] remain in the form of UF_6 enriched up to 5% U-235[21] and the rest has been further processed (see Annex III); and
- Up to the point at which it stopped producing UF_6 enriched up to 20% U-235, 447.8 kg of such nuclear material, all of which has been further processed through downblending or conversion into uranium oxide[22] (see Annex III).

[15] All of the LOFs are situated within hospitals.

[16] In line with normal safeguards practice, small amounts of nuclear material (e.g. some waste and samples) may not be subject to containment and surveillance.

[17] As declared by Iran in its design information questionnaires (DIQs) for the Fuel Enrichment Plant (FEP) at Natanz.

[18] GOV/2010/10, para. 8; and as declared by Iran in its DIQ for the Fuel Plate Fabrication Plant (FPFP).

[19] This figure includes 115.6 kg of UF_6 enriched up to 5% U-235 that has been produced from the downblending of UF_6 enriched up to 20% U-235.

[20] This figure has decreased because Iran, in line with the JPA, fed 1215 kg of UF_6 enriched up to 5% U-235 into the conversion process at the Enriched UO_2 Powder Plant (EUPP) prior to the JPA deadline, which at that time was 24 November 2014.

[21] This comprises nuclear material in storage as well as nuclear material in the cold traps and inside cylinders still attached to the enrichment process.

[22] Apart from 0.6 kg of UF_6 enriched up to 20% U-235, which are under Agency seal at Iran's declared enrichment facilities where the nuclear material had been used as reference material for mass spectrometry.

C.1. Natanz

16. **Fuel Enrichment Plant:** FEP is a centrifuge enrichment plant for the production of low enriched uranium (LEU) enriched up to 5% U-235, which was first brought into operation in 2007. The plant is divided into Production Hall A and Production Hall B. According to the design information submitted by Iran, eight units, each containing 18 cascades, are planned for Production Hall A, which totals approximately 25,000 centrifuges in 144 cascades. Currently, one unit contains IR-2m centrifuges; five contain IR-1 centrifuges; and the other two units do not contain centrifuges. Iran has yet to provide the corresponding design information for Production Hall B. The Agency continues to verify that Production Hall B does not contain any centrifuges.

17. In the unit containing IR-2m centrifuges, as of 8 February 2015, the situation remained unchanged from the Director General's previous report: six cascades had been fully installed with IR-2m centrifuges;[23] none of these cascades had been fed with natural UF_6; and preparatory installation work had been completed for the other 12 IR-2m cascades in the unit.

18. In the five units containing IR-1 centrifuges, as of 8 February 2015, the situation remained unchanged from the Director General's previous report: 90 cascades had been fully installed,[24] of which 54 were being fed with natural UF_6.[25] As previously reported, preparatory installation work had been completed for 36 IR-1 cascades in the two units not containing centrifuges.

19. Between 15 November 2014 and 2 December 2014, the Agency carried out a physical inventory verification (PIV) at FEP to verify the inventory as declared by Iran on 16 November 2014. The results of the PIV are now being evaluated by the Agency. As of 7 February 2015, Iran had fed 156,734 kg of natural UF_6 into the cascades at FEP since production began in February 2007 and produced a total of 13,730 kg of UF_6 enriched up to 5% U-235.[26]

20. As of 24 November 2014, Iran had downblended about 4,118 kg of UF_6 enriched up to 2% U-235 to natural uranium.[27]

21. Based on the results of the analysis of environmental samples taken at FEP,[28] and other verification activities, the Agency has concluded that the facility has operated as declared by Iran in the relevant design information questionnaire (DIQ).

22. **Pilot Fuel Enrichment Plant:** PFEP is a pilot LEU production, and research and development (R&D) facility that was first brought into operation in

[23] The number of IR-2m centrifuges installed at FEP (1008) was also unchanged.

[24] The number of IR-1 centrifuges installed at FEP (15 420) was also unchanged.

[25] GOV/2014/10, para. 22. The Agency has applied additional containment and surveillance measures to confirm that no more than the 54 IR-1 cascades (containing 9156 centrifuges) are being fed with nuclear material at FEP.

[26] Based on the amounts of UF_6 enriched up to 5% U-235 verified by the Agency (as of 16 November 2014) and the amounts of UF_6 enriched up to 5% U-235 estimated by Iran (covering the period from 17 November 2014 to 7 February 2015).

[27] This relates to one of Iran's undertakings in the JPA, as extended. The nuclear material originates from the tails produced by the enrichment of UF_6 up to 20% U-235 and from nuclear material evacuated from the cascades producing UF_6 enriched up to 5% U-235, and is not included in the amount of UF_6 enriched up to 5% U-235 indicated in para. 15.

[28] Results are available to the Agency for samples taken up to 10 November 2014.

October 2003. It can accommodate six cascades, and is divided between an area designated by Iran for the production of UF_6 enriched up to 20% U-235 (Cascades 1 and 6) and an area designated by Iran for R&D (Cascades 2, 3, 4 and 5).

23. As indicated in the Director General's previous report,[29] between 13 and 30 September 2014, the Agency carried out a PIV at PFEP to verify the inventory as declared by Iran on 13 September 2014. The results of the PIV are being evaluated by the Agency.

24. ***Production area:*** As indicated in the Director General's previous report, Iran has ceased feeding Cascades 1 and 6 with UF_6 enriched up to 5% U-235 and is feeding them with natural UF_6 instead.[30] On 8 February 2014, Iran provided an update to parts of the DIQ in which it stated that it had taken measures "due to change in level of enrichment" and that the measures "are temporarily taken during the first step implementation of the JPA".[31] Since the JPA took effect, Iran has not operated Cascades 1 and 6 in an interconnected configuration.[32]

25. As of 20 January 2014, when it ceased production of UF_6 enriched up to 20% U-235, Iran had fed 1,630.8 kg of UF_6 enriched up to 5% U-235 into Cascades 1 and 6 since production began in February 2010 and had produced a total of 201.9 kg of UF_6 enriched up to 20% U 235, all of which has since been withdrawn from the process and verified by the Agency. Between 20 January 2014 and 1 February 2015, Iran fed 961.6 kg of natural UF_6 into Cascades 1 and 6 at PFEP and produced a total of 91.0 kg of UF_6 enriched up to 5% U-235.[33]

26. ***R&D area:*** Since the Director General's previous report, Iran has been intermittently feeding natural UF_6 into IR-1, IR 2m, IR-4 and IR-6 centrifuges, sometimes into single machines and sometimes into cascades of various sizes. The Agency has verified that one IR-5 centrifuge and one prototype IR-8 centrifuge[34] are in place but without connections.[35]

27. Between 11 October 2014 and 1 February 2015, a total of approximately 790.9 kg of natural UF_6 was fed into centrifuges in the R&D area, but no LEU was withdrawn as the product and the tails were recombined at the end of the process.

28. Between 20 January 2014 and 20 July 2014, Iran downblended 108.4 kg of its inventory of UF_6 enriched up to 20% U-235.[36]

---

[29] GOV/2014/58, para. 22.

[30] As of 10 February 2015, Cascades 1 and 6 contained a total of 328 IR-1 centrifuges (unchanged).

[31] As further extended (see footnote 2 of this report).

[32] GOV/2014/10, para. 28. The Agency has applied additional containment and surveillance measures to confirm that Cascades 1 and 6 are not interconnected.

[33] Based on the amounts of UF_6 enriched up to 5% U-235 verified by the Agency (as of 13 September 2014) and the amounts of UF_6 enriched up to 5% U-235 estimated by Iran (covering the period from 14 September 2014 to 1 February 2015).

[34] GOV/2014/58, footnote 33.

[35] On 10 February 2015, there were two IR-1 centrifuges, 12 IR-4 centrifuges, one IR-5 centrifuge, 13 IR-6 centrifuges and one prototype IR-8 centrifuge installed in Cascade 2; 15 IR-1 centrifuges, two IR-2m centrifuges and 23 IR-4 centrifuges installed in Cascade 3; 164 IR-4 centrifuges installed in Cascade 4; and 162 IR-2m centrifuges installed in Cascade 5.

[36] By 20 July 2014, in line with the JPA, the downblending process had been completed.

29. Based on the results of the analysis of environmental samples taken at PFEP,[37] and other verification activities, the Agency has concluded that the facility has operated as declared by Iran in the relevant DIQ.

C.2. Fordow

30. **Fordow Fuel Enrichment Plant:** FFEP is, according to the DIQ of 18 January 2012, a centrifuge enrichment plant for the production of UF_6 enriched up to 20% U-235 and the production of UF_6 enriched up to 5% U-235.[38] The facility, which was first brought into operation in 2011, is designed to contain up to 2,976 centrifuges in 16 cascades, divided between Unit 1 and Unit 2. To date, all of the centrifuges installed are IR-1 machines. On 8 February 2014, Iran provided an update to parts of the DIQ in which it stated that it had taken measures "due to change in level of enrichment" and that the measures "are temporarily taken during the first step implementation of the JPA".[39]

31. As previously reported, Iran has ceased feeding UF_6 enriched up to 5% U-235 into the four cascades of Unit 2 previously used for this purpose and is feeding them with natural UF_6 instead. Since the JPA took effect, Iran has not operated these cascades in an interconnected configuration.[40] As of 9 February 2015, none of the other 12 cascades in FFEP had been fed with UF_6.[41]

32. Between 24 January 2015 and 8 February 2015, the Agency carried out a PIV at FFEP, the results of which are now being evaluated by the Agency.

33. As of 20 January 2014, when it ceased production of UF_6 enriched up to 20% U-235, Iran had fed 1806 kg of UF_6 enriched up to 5% U-235 into the cascades at FFEP since production began in December 2011 and had produced a total of 245.9 kg of UF_6 enriched up to 20% U-235, all of which has since been withdrawn from the process and verified by the Agency. Between 20 January 2014 and 9 February 2015, Iran fed 2,472.7 kg of natural UF_6 into the cascades at FFEP and produced a total of 238.3 kg of UF_6 enriched up to 5% U-235.[42]

34. Based on the results of the analysis of environmental samples taken at FFEP,[43] and other verification activities, the Agency has concluded that the facility has operated as declared by Iran in the relevant DIQ.

---

[37] Results are available to the Agency for samples taken up to 29 November 2014.

[38] GOV/2009/74, paras 7 and 14; GOV/2012/9, para. 24. Iran has provided the Agency with an initial DIQ and three revised DIQs with different stated purposes for FFEP. In light of the difference between the original stated purpose of the facility and the purpose for which it is now being used, additional information from Iran is still required.

[39] As further extended (see footnote 2 of this report).

[40] GOV/2014/10, para. 36. The Agency has applied additional containment and surveillance measures at FFEP to confirm that only the four IR-1 cascades are used to enrich UF_6 and that they are not interconnected.

[41] The number of centrifuges installed at FFEP (2710) was also unchanged.

[42] Based on the amounts of UF_6 enriched up to 5% U-235 verified by the Agency (as of 24 January 2015) and the amounts of UF_6 enriched up to 5% U-235 estimated by Iran (covering the period from 25 January 2015 to 9 February 2015).

[43] Results are available to the Agency for samples taken up to 1 December 2014.

C.3. Other Enrichment Related Activities

35. Iran continues to provide the Agency with regular managed access to centrifuge assembly workshops, centrifuge rotor production workshops and storage facilities.[44] Such access, as well as associated mutually agreed information, was also provided by Iran pursuant to one of the practical measures agreed in relation to the Framework for Cooperation (see Annex I). As part of this managed access, Iran has also provided the Agency with an inventory of centrifuge rotor assemblies to be used to replace those centrifuges that fail. The Agency has analysed the information provided by Iran and, upon request, has received additional clarifications. Based on analysis of all the information provided by Iran, as well as the managed access and other verification activities carried out by the Agency, the Agency can confirm that, since the JPA took effect, centrifuge rotor manufacturing and assembly are consistent with Iran's replacement programme for failed centrifuges.[45]

D. Reprocessing Activities

36. Iran is required, pursuant to the relevant resolutions of the Board of Governors and the Security Council, to suspend its reprocessing activities, including R&D.[46] As previously reported, Iran stated in January 2014 that "during the first step time-bound (six months), Iran will not engage in stages of reprocessing activities, or construction of a facility capable of reprocessing".[47] In a letter to the Agency dated 27 August 2014, Iran indicated that this "voluntary measure" had been extended in line with the extension of the JPA.[48]

37. The Agency has continued to monitor the use of hot cells at the Tehran Research Reactor (TRR)[49] and the Molybdenum, Iodine and Xenon Radioisotope Production (MIX) Facility.[50] The Agency carried out an inspection and a design information verification (DIV) at TRR on 9 February 2015, and a DIV at the MIX Facility on 10 February 2015. The Agency can confirm that there are no ongoing reprocessing related activities with respect to TRR, the MIX Facility and the other facilities to which the Agency has access in Iran.

E. Heavy Water Related Projects

38. Contrary to the relevant resolutions of the Board of Governors and the Security Council, Iran has not suspended work on all heavy water related projects.[51] However, since the JPA took effect, Iran has neither installed any major components at the IR 40 Reactor nor produced nuclear fuel assemblies for the IR 40 Reactor at the Fuel Manufacturing Plant (FMP).

---

[44] This relates to one of Iran's undertakings in the JPA.
[45] This relates to one of Iran's undertakings in the JPA.
[46] GOV/2013/56, footnote 28.
[47] This relates to one of Iran's undertakings in the JPA.
[48] As further extended (see footnote 2 of this report).
[49] The TRR is a 5 MW reactor which operates with 20% U-235 enriched fuel and is used for the irradiation of different types of targets and for research and training purposes.
[50] The MIX Facility is a hot cell complex for the separation of radiopharmaceutical isotopes from targets, including uranium, irradiated at TRR.
[51] GOV/2013/56, footnote 32.

39. **IR-40 Reactor:** The IR-40 Reactor, which is under Agency safeguards, is a 40 MW heavy water moderated research reactor designed to contain 150 fuel assemblies containing natural uranium in the form of UO_2.

40. On 8 February 2015, the Agency carried out a DIV at the IR-40 Reactor and observed that, since the Director General's previous report, none of the reactor's remaining major components had been installed.[52] As previously reported, pursuant to one of the practical measures agreed in relation to the Framework for Cooperation, Iran concluded with the Agency a safeguards approach for the IR-40 Reactor in August 2014.[53]

41. **Heavy Water Production Plant:** The Heavy Water Production Plant (HWPP) is a facility for the production of heavy water with a design capacity to produce 16 tonnes of reactor-grade heavy water per year.

42. As previously reported, although the HWPP is not under Agency safeguards, the plant was subject to managed access by the Agency on 8 December 2013.[54] During the managed access, Iran also provided the Agency with mutually agreed relevant information. In addition, access to the heavy water storage location at the Uranium Conversion Facility (UCF) at Esfahan in February 2014 enabled the Agency to characterize the heavy water.[55]

F. Uranium Conversion and Fuel Fabrication

43. Iran is conducting a number of activities at UCF, the Enriched UO_2 Powder Plant (EUPP), FMP and the Fuel Plate Fabrication Plant (FPFP) at Esfahan, as indicated below, which are in contravention of its obligations to suspend all enrichment related activities and heavy water related projects, notwithstanding that the facilities are under Agency safeguards.

44. Since Iran began conversion and fuel fabrication at its declared facilities, it has, inter alia:

- Produced 550 tonnes of natural UF_6 at UCF, of which 170 tonnes have been transferred to FEP.
- Transferred six tonnes of natural UF_6 to EUPP. In addition, 4.3 tonnes of UF_6 enriched up to 5% U-235 have been transferred from FEP to EUPP.
- Fed into the conversion process at EUPP 2,720 kg of UF_6 enriched up to 5% U-235.
- Fed into the R&D conversion process at UCF 53 kg of UF_6 enriched to 3.34% U-235 and produced 24 kg of uranium in the form of UO_2.[56]
- Fed into the conversion process at FPFP 337.2 kg of UF_6 enriched up to 20% U-235 and produced 162.8 kg of uranium in the form of U_3O_8.[57]

[52] GOV/2013/56, para. 34.
[53] GOV/2014/43, para. 46.
[54] GOV/2014/10, para. 13.
[55] GOV/2013/56, para. 39.
[56] GOV/2012/55, para. 35.
[57] Unchanged since the Director General's previous report.

- Used 90.6 kg of uranium in the form of U_3O_8 produced at FPFP for the manufacture of fuel items for TRR.

45. **Uranium Conversion Facility:** UCF is a conversion facility for the production of both natural UF_6 and natural UO_2 from uranium ore concentrate (UOC). It is planned that UCF will also produce UF_4 from depleted UF_6, and uranium metal ingots from natural and depleted UF_4.

46. On 26 July 2014, Iran informed the Agency that Iran would conduct R&D activities at UCF on uranium recovery from liquid and solid scrap resulting from conversion activities at UCF. On 16 February 2015, the Agency observed that Iran had started the recovery of uranium from liquid scrap resulting from conversion activities at UCF.

47. Iran has declared that, as of 16 February 2015, it had produced 13.8 tonnes[58] of natural uranium in the form of UO_2 through the conversion of UOC.[59] The Agency has verified that, as of the same date, Iran had transferred 13.2 tonnes[60] of natural uranium in the form of UO_2 to FMP.

48. **Enriched UO_2 Powder Plant:** EUPP is a facility for the conversion of UF_6 enriched up to 5% U-235 into UO_2 powder.[61] As previously reported, Iran began commissioning the facility in May 2014 using natural uranium. As part of the commissioning, as of 13 February 2015, Iran had fed a total of 5,506 kg of natural UF_6 into the conversion process and produced 1,375.5 kg of uranium in the form of UO_2. Since the plant began operations in July 2014, Iran has fed 2720 kg of UF_6 enriched up to 5% U-235 into the conversion process for the production of UO_2.[62,63]

49. **Fuel Manufacturing Plant:** FMP is a facility for the fabrication of nuclear fuel assemblies for power and research reactors (see Annex III).

50. As a result of the PIV carried out by the Agency at FMP between 31 August 2014 and 1 September 2014, the Agency has verified, within the measurement uncertainties normally associated with such a facility, the inventory as declared by Iran on 29 August 2014.

51. On 15 February 2015, the Agency carried out an inspection and a DIV at FMP and verified that Iran had continued its cessation of production of nuclear fuel assemblies using natural UO_2 for the IR-40 Reactor and that all of the fuel assemblies that had been produced previously remained at FMP.

52. **Fuel Plate Fabrication Plant:** FPFP is a facility for the conversion of UF_6 enriched up to 20% U-235 into U_3O_8 and the manufacture of fuel assemblies made of fuel plates containing U_3O_8 (see Annex III).

53. As previously reported, Iran stated in January 2014 that "during the first step of time-bound (six months), Iran declares that there is no reconversion line to reconvert uranium oxide enriched up to 20% U-235 back into UF_6 enriched up to

[58] Unchanged from the figure indicated in the Director General's previous report.
[59] This amount only refers to nuclear material qualified for fuel fabrication.
[60] Unchanged from the figure indicated in the Director General's previous report.
[61] GOV/2013/40, para. 45.
[62] Pursuant to Iran's undertaking under the JPA to convert into oxide "UF_6 newly enriched up to 5% during the six-month period".
[63] Unchanged from the figure indicated in the Director General's previous report.

20% U-235".[64] In a letter to the Agency dated 27 August 2014, Iran indicated that this "voluntary measure" had been extended in line with the extension of the JPA.[65] Between 9 and 17 February 2015, the Agency carried out an inspection and a DIV at FPFP during which it confirmed that there was no process line at the plant for the reconversion of uranium oxide into UF_6.

54. Between 14 and 16 December 2014, the Agency carried out a PIV at FPFP, the results of which are now being evaluated by the Agency.

55. As previously reported, Iran has fed a total of 337.2 kg of UF_6 enriched up to 20% U-235 (227.6 kg of uranium) into the conversion process of FPFP. As of 17 February 2015, Iran had produced 162.8 kg of uranium in the form of U_3O_8 and generated solid and liquid scrap containing 55.4 kg of uranium. The remainder of the uranium that was fed into the process remains in the process and in waste. Of the 162.8 kg of uranium in the form of U_3O_8, Iran has used 90.6 kg to manufacture fuel items for TRR.

56. In a letter dated 28 December 2014, Iran informed the Agency of the operational schedule for FPFP and indicated its intention to establish process lines for the recovery of uranium from solid and liquid scrap. In its reply dated 19 January 2015, the Agency requested that Iran provide further clarification. On 10 February 2015, the Agency observed that the process lines had yet to commence operation and that Iran had started R&D activities related to the recovery of uranium from solid scrap.

57. The Agency has verified that, as of 10 February 2015, Iran had produced at FPFP one experimental fuel assembly and 32 TRR-type fuel assemblies. Thirty of these fuel assemblies, including the experimental assembly, had been transferred to TRR.

G. Possible Military Dimensions

58. Previous reports by the Director General have identified outstanding issues related to possible military dimensions to Iran's nuclear programme and actions required of Iran to resolve these.[66] The Agency remains concerned about the possible existence in Iran of undisclosed nuclear related activities involving military related organizations, including activities related to the development of a nuclear payload for a missile. Iran is required to cooperate fully with the Agency on all outstanding issues, particularly those which give rise to concerns about the possible military dimensions to Iran's nuclear programme, including by providing access without delay to all sites, equipment, persons and documents requested by the Agency.[67]

59. The Annex to the Director General's November 2011 report (GOV/2011/65) provided a detailed analysis of the information available to the Agency at that time, indicating that Iran has carried out activities that are relevant to the development of

[64] This relates to one of Iran's undertakings in the JPA.

[65] As further extended (see footnote 2 of this report).

[66] For example: GOV/2011/65, paras. 38-45 and Annex; GOV/2011/29, para. 35; GOV/2011/7, Attachment; GOV/2010/10, paras. 40-45; GOV/2009/55, paras. 18-25; GOV/2008/38, paras 14-21; GOV/2008/15, paras. 14-25 and Annex; GOV/2008/4, paras. 35-42.

[67] Security Council resolution 1929, paras. 2 and 3.

a nuclear explosive device. This information is assessed by the Agency to be, overall, credible.[68] The Agency has obtained more information since November 2011 that has further corroborated the analysis contained in that Annex.

60. In February 2012, Iran dismissed the Agency's concerns, largely on the grounds that Iran considered them to be based on unfounded allegations,[69] and in August 2014, Iran stated that "most of the issues" in the Annex to GOV/2011/65 were "mere allegations and do not merit consideration".[70]

61. As indicated above (para. 10), since the Director General's previous report, Iran has not provided any explanations that enable the Agency to clarify the two outstanding practical measures relating to the initiation of high explosives and to neutron transport calculations (see Annex I).

62. Since the Director General's previous report, at a particular location at the Parchin site, the Agency has observed, through satellite imagery, the presence of vehicles, equipment and probable construction materials, but no further external changes to the buildings on the site. As previously reported, the activities that have taken place at this location since February 2012 are likely to have undermined the Agency's ability to conduct effective verification.[71] It remains important for Iran to provide answers to the Agency's questions[72] and access to the particular location at the Parchin site.[73]

63. As indicated in previous reports and as reiterated by the Director General following his meetings in Tehran in August 2014, the Agency needs to be able to conduct a "system" assessment of the outstanding issues contained in the Annex to GOV/2011/65. This will involve considering and acquiring an understanding of each issue in turn, and then integrating all of the issues into a "system" and assessing that system as a whole. In this regard, the Agency remains ready to accelerate the resolution of all outstanding issues under the Framework for Co-operation. This can be realised by increased co operation by Iran and by the timely provision of access to all relevant information, documentation, sites, material and personnel in Iran as requested by the Agency. Once the Agency has established an understanding of the whole picture concerning issues with possible military dimensions, the Director General will report on the Agency's assessment to the Board of Governors.

[68] GOV/2011/65, Annex, Section B.

[69] GOV/2012/9, para. 8.

[70] GOV/2014/43, para. 64.

[71] For a list of the most significant developments observed by the Agency at this location between February 2012 and the publication of the Director General's May 2013 report, see GOV/2012/55, para. 44; GOV/2013/6, para. 52; and GOV/2013/27, para. 55. Further developments were reported in the Director General's reports of May 2014 (GOV/2014/28, para. 59), September 2014 (GOV/2014/43, para. 67), and November 2014 (GOV/2014/58, para. 59).

[72] GOV/2011/65, Annex, Section C; GOV/2012/23, para. 5.

[73] The Agency has information provided by Member States indicating that Iran had constructed a large explosives containment vessel (chamber) at this location in which to conduct hydrodynamic experiments. Such experiments would be strong indicators of possible nuclear weapon development (GOV/2011/65, Annex, paras 49-51).

H. Design Information

64. Under the terms of its Safeguards Agreement and relevant resolutions of the Board of Governors and the Security Council, Iran is required to implement the provisions of the modified Code 3.1 of the Subsidiary Arrangements General Part concerning the early provision of design information.[74]

65. In a letter to Iran dated 7 January 2015, the Agency requested that Iran, in line with the requirement under the provisions of the aforementioned modified Code 3.1, provide preliminary design information and the construction schedule for the nuclear plants that Iran had announced it was expecting to construct on the Bushehr site at the beginning of 2015.[75] In its reply dated 20 January 2015, Iran indicated that it had already made clear its position regarding modified Code 3.1 (see footnote 74 of this report, first sentence) but added "[c]ertainly, more information, when available, will be provided to the Agency in due time".

I. Additional Protocol

66. Contrary to the relevant resolutions of the Board of Governors and the Security Council, Iran is not implementing its Additional Protocol. The Agency will not be in a position to provide credible assurance about the absence of undeclared nuclear material and activities in Iran unless and until Iran provides the necessary cooperation with the Agency, including by implementing its Additional Protocol.[76]

J. Other Matters

67. On 20 January 2015, the Agency carried out an inspection and a DIV at the Heavy Water Zero Power Reactor (HWZPR) at Esfahan and verified that the 36 prototype fuel assemblies produced at FMP had been removed from the core after testing[77] and stored at the facility.

68. On 8 February 2015, the Agency confirmed that 16 fuel assemblies which had been produced in Iran and which contain uranium that was enriched in Iran up to 20% U 235 were in the core of TRR.[78] On the same date, the Agency observed that the Mini IR-40 prototype fuel assembly was in the storage pool.[79]

---

[74] In a letter dated 29 March 2007, Iran informed the Agency that it had suspended implementation of the modified Code 3.1 of the Subsidiary Arrangements to its Safeguards Agreement (GOV/INF/2007/8). In accordance with Article 39 of Iran's Safeguards Agreement, agreed Subsidiary Arrangements cannot be changed unilaterally; nor is there a mechanism in the Safeguards Agreement for the suspension of provisions agreed to in the Subsidiary Arrangements. Therefore, the modified Code 3.1, as agreed to by Iran in 2003, remains in force. Iran is further bound by operative para. 5 of Security Council resolution 1929 (2010).

[75] Reference to the public announcement made by Mr Kamalvandi, spokesman of the Atomic Energy Organization of Iran (AEOI), on 29 December 2014.

[76] Iran's Additional Protocol was approved by the Board of Governors on 21 November 2003 and signed by Iran on 18 December 2003, although it has not been brought into force. Iran provisionally implemented its Additional Protocol between December 2003 and February 2006.

[77] GOV/2013/40, para. 63.

[78] On 8 February 2015, the core of TRR comprised a total of 33 fuel assemblies.

[79] GOV/2013/40, para. 64.

69. As of 9 February 2015, the Agency confirmed that one fuel plate (the same one as indicated in the Director General's previous report), containing a mixture of U_3O_8 (enriched up to 20% U-235) and aluminium, remained at the MIX facility, having been transferred from FPFP, and was being used for R&D activities aimed at optimizing the production of ^{99}Mo, ^{133}Xe and ^{132}I isotopes.[80]

70. On 14 and 15 February 2015, the Agency conducted an inspection and a DIV at the Bushehr Nuclear Power Plant, at which time the reactor was operating at 70% of its nominal power.

K. Summary

71. While the Agency continues to verify the non-diversion of declared nuclear material at the nuclear facilities and LOFs declared by Iran under its Safeguards Agreement, the Agency is not in a position to provide credible assurance about the absence of undeclared nuclear material and activities in Iran, and therefore to conclude that all nuclear material in Iran is in peaceful activities.[81]

72. The Director General held talks with the Foreign Minister of Iran, HE Mohammad Javad Zarif on 7 February 2015. They agreed on the importance of continuing the dialogue between the Agency and Iran at all levels. The Director General also stressed the need to resolve, as soon as possible, all outstanding issues related to Iran's nuclear programme.

73. Iran has not provided any explanations that enable the Agency to clarify the two outstanding practical measures, nor has it proposed any new practical measures in the next step of the Framework for Cooperation.

74. The Agency remains ready to accelerate the resolution of all outstanding issues under the Framework for Co-operation. This can be realised by increased co-operation by Iran and by the timely provision of access to all relevant information, documentation, sites, material and personnel in Iran as requested by the Agency. Once the Agency has established an understanding of the whole picture concerning issues with possible military dimensions, the Director General will report on the Agency's assessment to the Board of Governors.

75. The Agency continues to undertake monitoring and verification in relation to the nuclear-related measures set out in the JPA, as further extended.

76. The Director General will continue to report as appropriate.

---

[80] GOV/2013/40, para. 65.

[81] The Board of Governors has confirmed on numerous occasions, since as early as 1992, that para. 2 of INFCIRC/153 (Corr.), which corresponds to Article 2 of Iran's Safeguards Agreement, authorizes and requires the Agency to seek to verify both the non-diversion of nuclear material from declared activities (i.e. correctness) and the absence of undeclared nuclear activities in the State (i.e. completeness) (see, for example, GOV/OR.864, para. 49 and GOV/OR.865, paras. 53-54).

Annex I

Practical Measures agreed to date by the Agency and Iran, and to be implemented by Iran, in relation to the Framework for Cooperation

FIRST STEP: Six (Initial) Practical Measures, agreed on 11 November 2013

1. Providing mutually agreed relevant information and managed access to the Gchine mine in Bandar Abbas.
2. Providing mutually agreed relevant information and managed access to the Heavy Water Production Plant.
3. Providing information on new research reactors.
4. Providing information with regard to the identification of 16 sites designated for the construction of nuclear power plants.
5. Clarification of the announcement made by Iran regarding additional enrichment facilities.
6. Further clarification of the announcement made by Iran with respect to laser enrichment technology.

SECOND STEP: Seven Practical Measures, agreed on 9 February 2014

1. Providing mutually agreed relevant information and managed access to the Saghand mine in Yazd.
2. Providing mutually agreed relevant information and managed access to the Ardakan concentration plant.
3. Submission of an updated Design Information Questionnaire (DIQ) for the IR-40 Reactor.
4. Taking steps to agree with the Agency on the conclusion of a Safeguards Approach for the IR-40 Reactor.
5. Providing mutually agreed relevant information and arranging for a technical visit to Lashkar Ab'ad Laser Centre.
6. Providing information on source material, which has not reached the composition and purity suitable for fuel fabrication or for being isotopically enriched, including imports of such material and on Iran's extraction of uranium from phosphates.
7. Providing information and explanations for the Agency to assess Iran's stated need or application for the development of Exploding Bridge Wire detonators.

THIRD STEP: Five Practical Measures, agreed on 20 May 2014

1. Exchanging information with the Agency with respect to the allegations related to the initiation of high explosives, including the conduct of large scale high explosives experimentation in Iran.

2. Providing mutually agreed relevant information and explanations related to studies made and/or papers published in Iran in relation to neutron transport and associated modelling and calculations and their alleged application to compressed materials.

3. Providing mutually agreed information and arranging a technical visit to a centrifuge research and development centre.

4. Providing mutually agreed information and managed access to centrifuge assembly workshops, centrifuge rotor production workshops and storage facilities.

5. Concluding the safeguards approach for the IR-40 Reactor.

Annex II

List of Declared Nuclear Facilities and LOFs in Iran

Tehran:

1. Tehran Research Reactor (TRR)
2. Molybdenum, Iodine and Xenon Radioisotope Production (MIX) Facility
3. Jabr Ibn Hayan Multipurpose Laboratories (JHL)

Esfahan:

4. Miniature Neutron Source Reactor (MNSR)
5. Light Water Sub-Critical Reactor (LWSCR)
6. Heavy Water Zero Power Reactor (HWZPR)
7. Uranium Conversion Facility (UCF)
8. Fuel Manufacturing Plant (FMP)
9. Fuel Plate Fabrication Plant (FPFP)
10. Enriched UO_2 Powder Plant (EUPP)

Natanz:

11. Fuel Enrichment Plant (FEP)
12. Pilot Fuel Enrichment Plant (PFEP)

Fordow:

13. Fordow Fuel Enrichment Plant (FFEP)

Arak:

14. Iran Nuclear Research Reactor (IR-40 Reactor)

Karaj:

15. Karaj Waste Storage

Bushehr:

16. Bushehr Nuclear Power Plant (BNPP)

Darkhovin:

17. 360 MW Nuclear Power Plant

Shiraz:

18. 10 MW Fars Research Reactor (FRR)

LOFs:

Nine (all situated within hospitals)

Annex III

Table 1
Summary of UF_6 Production and Flows

	Date	*Quantity*	*Enrichment*
Produced at UCF	16 February 2015	550 000 kg	Natural
Produced by downblending of UF_6 enriched up to 2% U-235	24 November 2015	7 730 kg	Natural
Fed into FEP, PFEP and FFEP	February 2015	160 168 kg	Natural
Produced at FEP, PFEP and FFEP	February 2015	14 059.3 kg	Up to 5%
Produced by downblending of UF_6 enriched up to 20% U-235	20 July 2014	115.6 kg	Up to 5%
Fed into PFEP	20 January 2014	1 630.8 kg	Up to 5%
Produced at PFEP	20 January 2014	201.9 kg	Up to 20%
Fed into FFEP	20 January 2014	1 806.0 kg	Up to 5%
Produced at FFEP	20 January 2014	245.9 kg	Up to 20%

Table 2
Inventory of UF_6 Enriched up to 20% U-235

Produced at FFEP and PFEP	447.8 kg
Fed into conversion process	337.2 kg
Downblended	110.0 kg*
Stored as UF_6	0.6 kg

* The figure includes 1.6 kg that was previously downblended (GOV/2012/55, para. 10).

Table 3
Conversion at UCF

Conversion process	*Quantity produced*	*Transferred to EMP*
UF_6 (~3.4% U-235) into UO_2	24 kg U	24 kg U
Natural UOC into UO_2	13 792 kg U*	13 229 kg U

* Uranium content in material qualified for fuel fabrication.

Table 4
Conversion of UF_6 Enriched up to 20% U-235 into U_3O_8 at FPFP

Feed quantity	*Quantity produced*
337.2 kg of UF_6 (227.6 kg U)	162.8 kg U

Table 5
Conversion of UF_6 into UO_2 at EUPP

Feed quantity	*Quantity produced*
5506 kg of natural UF_6 (3716.7 kg U)	1 375.5 kg U*
2720 kg of UF_6 enriched up to 5% U-235 (1835.3 kg U)	–*

* The rest of the nuclear material is in different stages of the process.

Table 6
Fuel Manufacturing at FMP

Item	*Number produced*	*Enrichment*	*Item mass (g U)*	*Number irradiated*
Test fuel rod for IR-40 Reactor	3	Natural uranium	500	1
Test fuel rod	2	3.4%	500	–
Fuel rod assembly	2	3.4%	6 000	1
Mini IR-40 prototype fuel assembly	1	Natural uranium	10 000	1
IR-40 prototype fuel assembly	36	Natural uranium	35 500	Not applicable
IR-40 fuel assembly	11	Natural uranium	56 500	–

Table 7
TRR Fuel Fabrication at FPFP

Item	*Number produced*	*Enrichment*	*Item mass (g U)*	*Present at TRR*	*Irradiated*
TRR test plate (Natural Uranium)	4	Natural uranium	5	2	1
TRR test plate	5	19%	75	5	2
TRR control fuel assembly	9	19%	1 000	8	6
TRR standard fuel assembly	23	19%	1 400	21	11
Test assembly (with 8 plates)	1	19%	550	1	–

Annex IV

Update on Iran's implementation of "voluntary measures" undertaken in relation to the Joint Plan of Action agreed between the E3+3 and Iran on 24 November 2013

1. The Agency confirms that since 20 January 2014, Iran has:

   i. not enriched uranium above 5% U-235 at any of its declared facilities;

   ii. not operated cascades in an interconnected configuration at any of its declared facilities;

   iii. diluted — down to an enrichment level of no more than 5% U-235 — 108.4 kg of UF_6 enriched up to 20% U-235;[82]

   iv. fed 100 kg of UF_6 enriched up to 20% U-235 into the conversion process at FPFP for conversion into uranium oxide;

   v. had no process line to reconvert uranium oxides back into UF_6 at FPFP;

   vi. not made "any further advances" to its activities at FEP, FFEP or the Arak reactor (IR-40 Reactor), including the manufacture and testing of fuel for the IR-40 Reactor;

   vii. provided an updated DIQ for the IR-40 Reactor and concluded with the Agency a safeguards approach for the reactor[83] (based on the updated DIQ and the safeguards measures agreed on 5 May 2014);

   viii. fed 2720 kg of UF_6 enriched up to 5% U-235 into the conversion process at the EUPP for conversion into uranium oxide;

   ix. continued its safeguarded enrichment R&D practices at PFEP, without accumulating enriched uranium;

   x. not carried out reprocessing related activities at TRR and the MIX Facility or at any of the other facilities to which the Agency has access;

   xi. provided information and managed access to the uranium mine and mill at Gchine,[84] to the Saghand Uranium Mine[85] and the Ardakan Uranium Production Plant;[86]

   xii. continued to provide daily access to the enrichment facilities at Natanz and Fordow;

   xiii. provided regular managed access to centrifuge assembly workshops, centrifuge rotor production workshops and storage facilities, and provided information thereon; and

[82] For details, see GOV/INF/2014/26, footnote 4.
[83] On 31 August 2014.
[84] On 29 January 2014.
[85] On 6 May 2014.
[86] On 7 May 2014.

xiv. provided,[87] in relation to enhanced monitoring, the following:

- plans for nuclear facilities and a description of each building on each nuclear site;
- descriptions of the scale of operations being conducted for each location engaged in specified nuclear activities; and
- information on uranium mines and mills, and on source material.

2. In addition, the Agency confirms that since 24 July 2014, Iran has:

i. used 31.8 kg of U_3O_8, converted from UF_6 enriched up to 20% U-235, for the manufacture of fuel items for TRR;[88,89]

ii. used 0.084 kg of U_3O_8, converted from UF_6 enriched up to 20% U-235, for the manufacture of miniature fuel plates for Mo^{99} production;[90] and

iii. diluted about 4118 kg of UF_6 enriched up to 2% U-235 to the level of natural uranium.

[87] As of 20 April 2014: pursuant to Iran's undertaking to provide this information within three months of the JPA taking effect, i.e. 20 January 2014.

[88] On 25 November 2014, pursuant to its Safeguards Agreement, Iran temporarily stopped the operations for conversion and fuel manufacturing at FPFP in preparation for the Agency's verification of the "physical inventory taking" at this facility. The Agency's verification was carried out between 14 and 16 December 2014.

[89] The Agency has verified that, since 24 July 2014, an additional 8.0 kg of this U_3O_8 (6.2 kg prior to 24 November 2014 and 1.8 kg since that date), have been generated by and removed from the fuel fabrication process as scrap. Iran reported that this nuclear material, which remains at the facility, had not met the technical specification for fuel fabrication.

[90] In a letter dated 28 December 2014, Iran informed the Agency that FPFP was to start the production of miniature fuel plates for the MIX Facility for Mo^{99} production.